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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/990,378	11/23/2001	Hikaru Okamoto	216405US3	2854

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EXAMINER	
WILLS, MONIQUE M	

ART UNIT	PAPER NUMBER
1746	

DATE MAILED: 08/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/990,378	OKAMOTO	
	Examiner	Art Unit	
	Monique M Wills	1746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 May 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 November 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

This Office Action is responsive to the Amendment filed May 26, 2004. The following rejections are overcome:

- Claims 1,3,5,6 & 8-9 under 35 U.S.C. § 102 (e) as being anticipated by Lott et al., U.S. Pub. 2001/0044373.
- Claims 2 & 7 under 35 U.S.C. § 103 (a) as being unpatentable over Lott et al., U.S. Pub. 2001/0044373 in view of Cisar et al., U.S. Pub. 2003/0068544.
- Claim 10 under 35 U.S.C. § 102 (b) as being anticipated by Koschany et al., U.S. Patent 5,998,057.
- Claim 4 under 35 U.S.C. § 103 (a) as being unpatentable over Lott et al., U.S. Pub. 2001/0044373.

Claims 1-10 are newly treated as follows:

- Claims 1,3,5,6 8 & 9 are rejected under 35 U.S.C. 102(e) as being anticipated by Rosenmayer U.S. Patent 6,605, 381.
- Claim 10 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement.
- Claims 2 & 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rosenmayer U.S. Patent 6,605,381, in view of Wood, III et al. U.S. Patent 6,350,539.

- Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rosenmayer U.S. Patent 6,605,381.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 10 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification does not provide support for a method for producing an electrode of a solid polymer electrolyte fuel cell, wherein the first and second gas diffusion layers are thermally pressed in such a way "which has not been pressed to increase a density".

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1,3,5,6 8 & 9 are rejected under 35 U.S.C. 102(e) as being anticipated by Rosenmayer U.S. Patent 6,605, 381.

With respect to claims 1 & 6, Rosenmayer teaches a solid polymer electrolyte fuel cell (col. 2, lines 65-68) comprising: a) a polymer electrolyte membrane having proton-conductivity, (col. 2, lines 65-68) and b) an anode disposed on one surface of the polymer electrolyte membrane (col. 1, lines 40-50), and c) a cathode disposed on another surface of the polymer electrolyte membrane (col. 4, lines 45-50 & Fig. 1), wherein the cathode comprises a first gas diffusion layer (3) joined to a second gas diffusion layer (4) in a thickness direction of the cathode (Fig. 1) , and wherein the second gas diffusion layer has a different characteristic as compared to the first gas diffusion layer (col. 1, lines 13-16).

In re claims 3 & 8, the first gas diffusion layer (3) differs from the second gas diffusion layer (4) in one of gas permeability in the thickness direction of the cathode, electric resistance and hydrophobicity (col. 8, lines 13-20).

The limitation of claim 5, with respect to the diffusion layer being made by wet papermaking, renders a product-by-process claims with the same product as the prior art. The claims only differ from Rosenmayer by its method of production. In accordance with MPEP 2113, "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). Therefore, since the process steps are considered but do not

weighed heavily with regard to patentability, and the method limitations of claim 5 does not patentably distinguish the instant diffusion electrode from Rosenmayer.

With respect to claim 9, the gas permeability of the second gas diffusion layer (4) is larger than the gas permeability of the first gas diffusion layer (3). See Fig. 1, and column 1, lines 10-20.

Therefore, the instant claims are anticipated by Rosenmayer.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rosenmayer U.S. Patent 6,605,381.

Rosenmayer teaches a gas diffusion electrode as described in the §102(e) rejection above.

Rosenmayer is silent 4 the first gas diffusion layer being disposed at a catalyst layer side of the cathode, the second gas diffusion layer being disposed at a separator side of the cathode, wherein the gas permeability of the second gas diffusion layer is larger than the gas permeability of the first gas diffusion layer.

However, it would have been obvious to one of ordinary skill in the art, at the time the instant invention was made to employ the gas permeability of the second gas diffusion layer at the separator side to be larger than the gas permeability of the first gas diffusion layer at the

catalyst side, since it has been held that rearranging parts of an invention involves only routine sill in the art. In re Japikse, 86 USPQ 70. The skilled artisan would have been motivated to rearrange the gas permeability to optimize movement of reactant gases in a direction toward the membrane electrode assembly and to move product gases and water in a direction away from the membrane electrode assembly.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 2 & 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rosenmayer U.S. Patent 6,605,381, in view of Wood, III et al. U.S. Patent 6,350,539.

Rosenmayer teaches a gas diffusion electrode as described in the §102(e) rejection above.

Rosenmayer is silent to a hydrophilic intermediate layer disposed between the first and second gas diffusion layers (claims 2 & 7).

However, Wood teaches that it is conventional to employ an intermediate hydrophilic layer in gas diffusion electrodes for fuel cells, to provide proper surface energy and corresponding hydrophilicity to optimize movement of reactant gases in a direction toward the membrane electrode assembly and to move product gases and water in a direction away from the membrane electrode assembly (col. 3, lines 1-5).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the instant invention was made to employ the intermediate hydrophilic layer of Wood, in the gas diffusion electrode of Rosenmayer, in order to provide proper surface energy and corresponding hydrophilicity to optimize movement of reactant gases in a direction toward the membrane electrode assembly.

Conclusion

Response to Arguments

Applicant's arguments, see page 5, lines 14-24 filed May 26, 2004, with respect to the rejection(s):

- Claims 1,3,5,6 & 8-9 under 35 U.S.C. § 102 (e) as being anticipated by Lott et al., U.S. Pub. 2001/0044373.
- Claims 2 & 7 under 35 U.S.C. § 103 (a) as being unpatentable over Lott et al., U.S. Pub. 2001/0044373 in view of Cisar et al., U.S. Pub. 2003/0068544.
- Claim 10 under 35 U.S.C. § 102 (b) as being anticipated by Koschany et al., U.S. Patent 5,998,057.
    - *This rejection will be reinstated once the 35 U.S.C §112 first paragraph, new matter rejection is overcome.*
- Claim 4 under 35 U.S.C. § 103 (a) as being unpatentable over Lott et al., U.S. Pub. 2001/0044373.

have been fully considered and are persuasive. Specifically, Applicant has submitted a Certified English Translation of the Japanese Foreign Priority document 2000-355722, filed

November 22, 2000, that antedates all references of record. Therefore, the rejections have been withdrawn. However, upon further consideration, new ground(s) of rejections:

- Claims 1,3,5,6 8 & 9 are rejected under 35 U.S.C. 102(e) as being anticipated by Rosenmayer U.S. Patent 6,605, 381.
- Claim 10 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement.
- Claims 2 & 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rosenmayer U.S. Patent 6,605,381, in view of Wood, III et al. U.S. Patent 6,350,539.
- Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rosenmayer U.S. Patent 6,605,381.

have been made.

Conclusion

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Monique Wills whose telephone number is (571) 272-1309. The Examiner can normally be reached on Monday-Friday from 8:30am to 5:00 pm.

If attempts to reach Examiner by telephone are unsuccessful, the Examiner's supervisor, Michael Barr, may be reached at 571-272-1414. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov.Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MW

08/04/04

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